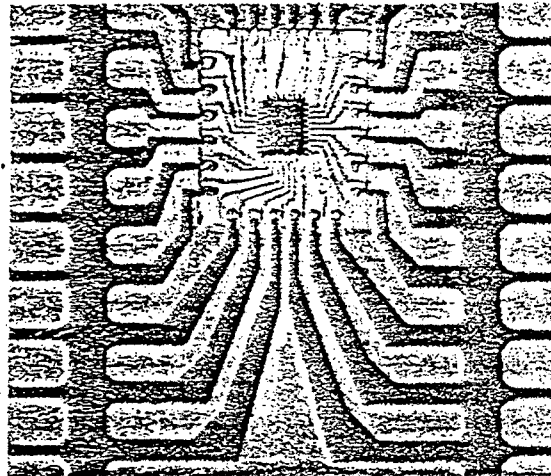




Bruce Hoernig



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Larry Downing—Newsweek

Weinberger, a microchip circuit, Inman: Warnings that Moscow intends to use the West's own technology as a weapon.

Keeping High-Tech Secrets

Last summer a fisherman off the North Carolina coast hauled in an unusual catch: a Soviet sonar buoy. Inside, Pentagon experts found a sophisticated electronic package that could transmit information on water temperature, current speed and salinity—all of great value to Soviet submarines at sea. More disturbing was the discovery that the electronic chips guiding its operation were replicas of circuitry made by RCA Corp. in the United States. That and many similar incidents have convinced the American Government that the leakage of Western technology to the Soviet Union has grown to alarming proportions. Using the Polish crisis as its rallying point, the Reagan Administration has launched a determined effort to persuade U.S. specialists and the Western allies to staunch the flow. In a bellwether speech last week, Assistant Commerce Secretary Lawrence J. Brady recalled the prediction attributed to Lenin "that the capitalists would gladly sell the rope with which they would be hung."

The United States took its case to Brussels last week at a special meeting of the NATO alliance to discuss Western responses to the military repression in Poland. The NATO ministers agreed that "Soviet actions toward Poland make it necessary for the allies to examine the course of future economic and commercial relations with the Soviet Union." That examination will begin this week under the aegis of COCOM, the Coordinating Committee for Multilateral Export Controls, an obscure organization in Paris that regulates Western sales of military, nuclear and sensitive industrial equipment to the Communist world. The U.S. delegation will be pressing for much tighter restrictions on the sale of sophisticated

goods and technologies. "We will present new evidence to our allies on how the Soviet Union and Warsaw Pact are using Western technology to strengthen their offensive military capabilities," Defense Secretary Caspar Weinberger wrote in the Wall Street Journal last week.

Specifically, the United States will be pushing for strict new curbs on goods that can be used for both civilian and military purposes—and a total embargo on equipment needed by the Soviets to build their 3,600-mile natural-gas pipeline from Siberia to Western Europe. Such proposals have

Washington launches a drive to cut the flow of valuable Western technology to the East bloc.

already raised protests in West Germany, where the Soviet trade is particularly lucrative. Faced with an unemployment rate of 7.3 percent—the highest level in two decades—West German Chancellor Helmut Schmidt has been telling audiences that an American grain embargo would be a more effective sanction against the Kremlin's misbehavior in Poland. And besides, insists a spokesman for the West German economics ministry, "the East bloc has the raw materials, and we have the capital and the know-how. It's a state of affairs which cries for cooperation."

Even more controversial are some of the

restrictions that the Reagan Administration hopes to impose at home. Warning of a public outrage against any further "hemorrhage of the country's technology" to the Soviets, deputy CIA director Bobby Ray Inman recently warned American scientists to voluntarily submit their work for review by intelligence agencies. The alternative, he asserted, would be "a confrontation between national security and science" that could lead to repressive laws restricting the publication of any scientific findings that the government considered "sensitive" to national security.

Such a confrontation has already occurred between Washington and some major research centers. Last fall the State Department sent letters to academic researchers across the country requesting information about the study programs of foreign science students. Many schools bristled at what they felt was an intrusion on academic freedom. "Our response was to send the State Department a copy of the physics department's catalogue describing the courses," says Edward Gerjuoy of the University of Pittsburgh. "These are our programs and all of our graduate students are treated the same way." The Massachusetts Institute of Technology also refused to cooperate. "We do not do any classified work here, therefore I do not find it necessary to fill out the form," says Herman Feshbach, chairman of MIT's physics department.

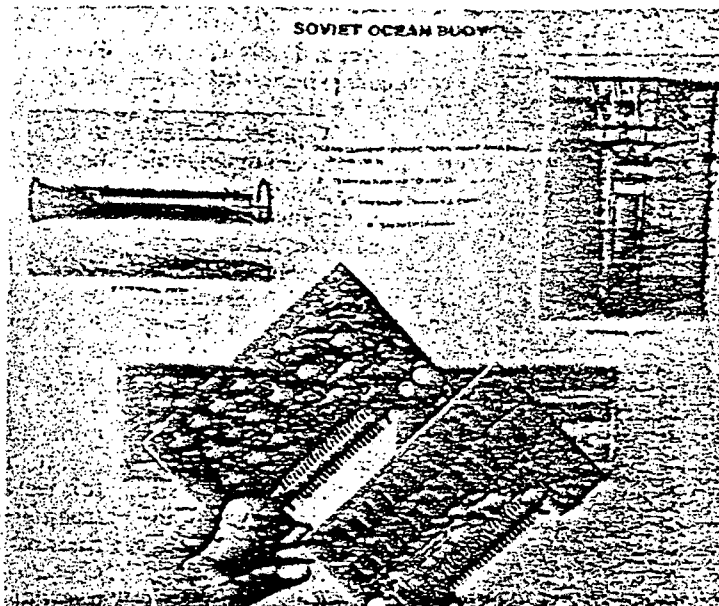
Cryptography: Many university researchers do cooperate with the government in sensitive fields like cryptography: a study group composed of academicians and government intelligence specialists screens cryptography manuscripts before publication—although universities reserve the

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right to publish at their discretion. But any government move to restrict research topics and academic exchanges would damage important work, many scientists argue. Such an effort would be, at best, monumentally difficult. "Basically, what they're asking us to do is apply for an export license to export ideas," says Reginald Golledge of the University of California at Santa Barbara. "It's an impossible thing to do."

Controversial as they are, Washington's efforts at research control seem mild compared with other plans under consideration for stemming the flow of scientific information. If internal dissent can be quieted, the Commerce Department plans to propose a law making it a felony for researchers to disclose sensitive data in any form—including publications, meetings or classrooms—without first obtaining a license. In addition, the House of Representatives is considering a bill that would give the government the power to prevent publication of anything considered threatening to the "national interest," however that might be defined.

Leaks: The Reagan Administration is arguing forcefully that Western technology leaks have contributed significantly to Soviet strategic needs. In the early days of détente, the Nixon Administration approved the sale to the Soviets of 164 precision grinders capable of making micro-ball bearings. Although the bearings were ostensibly to be used for civilian purposes, their technology is believed to have ended up in Soviet ballistic missiles. French sources charge that sophisticated Western chemicals have been used in Soviet germ-warfare experiments,



Copy buoy: Soviet sonar device using American designs (foreground)

and vehicles produced at the Kama River truck factory—built with extensive American help—were used in the Soviet invasion of Afghanistan.

Some leaks have come about through seemingly legitimate academic exchanges. In 1976 and 1977 a Russian scholar named S. A. Gubin studied the technology of fuel-air explosives under an American professor who was also a consultant for the U.S. Navy. Gubin is now pursuing similar studies back home. At about the same time, Hungarian physicist Georgy Zimmer was beginning three years at the California Institute of Technology studying sophisticated computer memories. He was expelled from the country only after a Hungarian defector revealed that he was working for the Soviets and had been given a target date to deliver a prototype memory chip to Moscow.

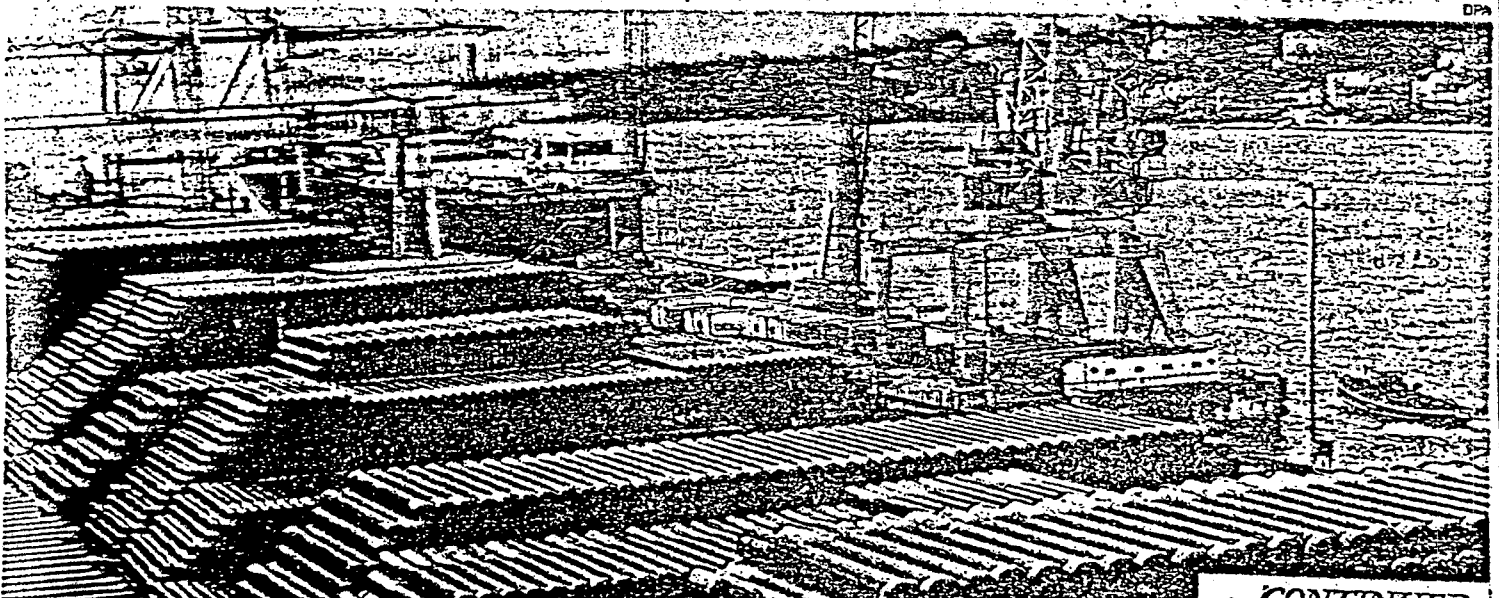
At the COCOM meeting in Paris, says

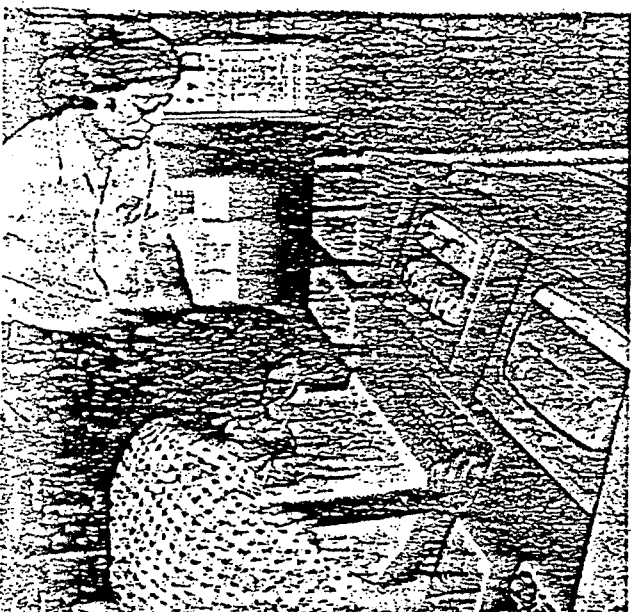
the Commerce Department's Brady, the Americans will maintain that through the construction of the Siberian-gas pipeline, the Russians hope to increase their control over Western energy supplies. The United States will also argue that continued access to Western technology is essential to Soviet military designs. The hard currency that is earned through gas exports will offset the drain from declining oil production, Brady says, and "if the Soviets are able to continue to earn that hard currency, they will be able to continue to devote as much of their resources to their military buildup as they have in the last few years."

If the allies decline to protect more of the West's technological secrets, the United States may try to restrict its sharing of technology with them. One American official suggests that if agreement is reached in Paris to strengthen COCOM rules, Washington will approve more joint ventures and bilateral research agreements with the Europeans and Japanese. But, he adds, "to be part of an open technological exchange world with the U.S., [the allies] have to help us close the vessel at the other end. If not," he continues, "we may have to become more cautious" about letting technological information out of American hands.

Controls: Washington alone can exert only minimal pressure on Moscow. In 1980 Jimmy Carter reacted to the invasion of Afghanistan by imposing strict controls on exports to the Soviet Union. In that year, notes Rand Corp. analyst Thane Gustafson in a recent study, U.S. high-tech exports to the

A Soviet-bound shipment of oil pipe awaits loading in Hamburg: Eastern raw materials for Western know-how





Tass from Soviet

American adviser (standing) at a Soviet gasoline plant

Russians amounted to only \$183 million, and in the wake of Ronald Reagan's New Year's declaration of even tighter sanctions, the trade this year figures to be much less.

American businessmen complain that the only effect of the Carter embargo was to shift more sales to their foreign competitors. Nine months after Armco International was forced to cancel a contract to provide generators and turbines for the giant Novolipetsk dynamo-steel facility, the contract was grabbed by the Creusot-Loire steel company of France. Unless the allies agree to tough sanctions under COCOM, the same thing is likely to happen under the new American embargo on pipeline equipment. The General Electric Co. was forced to drop a \$175 million contract to supply pipeline

Industria reported that a deputy oil minister had been fired for his part in a scandal in which tons of imported equipment that was supposed to boost oil production had been left to rust. Gustafson argues strongly against exports of equipment with an obvious military use, but, he adds, "in the lagging areas in which most Soviet imports of foreign technology are concentrated, the Soviets' record in absorbing and learning from it is poor." In fact, Gustafson suggests, Western imports may even have perpetuated Russian weaknesses by relieving immediate economic pressures and leaving little incentive for more fundamental reform.

Whatever the merits of export sanctions, the NATO allies declared a halt to government export credits to Poland for goods

turbines, and both Britain's Rolls-Royce and Italy's Nuovo Pignone are expected to bid aggressively for the business. According to Wellesley College Prof. Marshall Goldman, unilateral sanctions cannot work except in rare instances when the United States has a technological monopoly. "If [the Russians] invade Afghanistan, if they invade Poland, if they invade West Berlin, you can say morally 'I object,' but economically, you're making a fool of yourself," Goldman says.

Rust: Some experts also question whether Soviet imports of Western technology are as dangerous as Washington suggests. Recently the Soviet press has admitted that great amounts of Western equipment and materials have simply gone to waste. Last October the newspaper *Sotsialisticheskaya*

other than food—a move that could cost the Poles hundreds of millions of dollars in additional import expenses. The allies also drew up a list of further actions to consider if the Polish crisis persists. Revised maritime agreements could deny the Soviets access to the port of Antwerp, a vital link to the outside world. The allies also might consider reducing energy imports from Russia and cutting back on food exports—a move that would fall most heavily on American farmers. In Washington, Administration hard-liners are urging that Poland's debts be declared in default, a measure that could plunge the entire Soviet bloc into a financial crisis (box).

But the main issue on the table in Paris this week will involve transfers of Western technology and information to the East, and the most important question is whether the effort will be worth the dissension that it inevitably will bring within the Atlantic alliance. The reluctance of the West Germans has already created strains with France and the United States—and if the Reagan Administration persists in its attempt to suppress scientific discourse, the effort is bound to become a major domestic political issue. The threat of sanctions is not likely to persuade the Kremlin to relax its hold on Poland—but to Washington, that is really not the point. "There's no question but that we're going to be tough," insists Brady. "We share the burden of the West's defense, and we cannot afford to have our expenditures undermined by the export of high technology from the West." The Reagan Administration regards high technology not as a political or economic tool but as a matter of national security, and it is not likely to reduce the pressure on its allies.

HARRY ANDERSON with MARY LORD and MARY HAGER in Washington, ANDREW NAGORSKI in Moscow, RON MOREAU in Paris, STEVEN SHABAD and HOPE LAMPERT in New York and bureau reports